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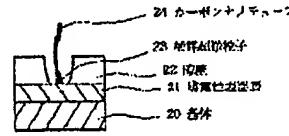
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## (54) CARBON NANO TUBE DEVICE, ITS MANUFACTURE AND ELECFRON EMISSION ELEMENT

## (57)Abstract:

PROBLEM TO BE SOLVED: To improve directivity of a carbon nano tube and to obtain a device with large amount of electron emission, by surrounding a connection part onto the conductive surface of the carbon nano tube.

SOLUTION: A layer 21 for constituting the conductive surface of a substrate 20 is formed on the substrate 20, a carbon nano tube 24 is connected to the surface of the layer 21 for constituting the conductive surface via a catalyst ultra fine particle 23, and a connection part to the conductive surface of the carbon nano tube 24 is surrounded by a barrier. In this case, at the junction between the carbon nano tube 24 and the conductive surface, ohmic junction, Schottky junction, or the like that are fully joined electrically exist and junction characteristics change due to the composition and manufacturing conditions of the layer 21 for constituting the catalyst or the conductive surface, thus obtaining an improved device that is electrically joined to an electrode and where the carbon nano tube is mutually isolated and also obtaining an electron emission device with improved electron emission characteristics.



## LEGAL STATUS

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